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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/976,440	11/25/97	SMITH D	MUR-3494

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EXAMINER	
MOSKOWITZ, N	
ART UNIT	**PAPER NUMBER**
3662	45

DATE MAILED: 09/17/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 08/976,440	Applicant(s) SMITH, DAVID B.	
	Examiner Nelson Moskowitz	Art Unit 3662	

-- Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Peri d for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 August 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disp sition of Claims

4)☒ Claim(s) *1-6 and 8-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 8-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

1. Applicant's letter received August 27, 2001 has been entered. An action on the pending application follows.

2. The text of those section of Title 35 U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-6 and 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Montgomery ('908) or Bockhorst et al when taken with Grossman and Close et al or Arriens. In determining obviousness, the following factual determinations are made:

a. first, the scope and content of the prior art:

b. second, the difference between the prior art and the pending claims;

c. third, the level of skill of a person of ordinary skill in the art; and,

d. fourth, whether other objective evidence may be present, which indicates obviousness or nonobviousness. Graham v. John Deere Co., 282 U.S. 17-18, 148 USPQ 459, 466-67(1966). Objective evidence includes a long felt but unmet need for the claimed invention, failure of others to solve the problem addressed by the claimed invention, imitation or copying of the claimed invention, and commercial success due to the features of the invention and not other factors. See e.g., Simmons Fastener Corp. v. Illinois Tool Works, Inc., 739 Fed. 1573, 1574-76, 222 USPQ 744, 745-747 (Fed. Cir. 1984).

Examining the scope and content of the prior art we find the following:

a) Montgomery and Bockhorst et al disclose a method and apparatus for transmitting data in a borehole. Column 1 of Bockhorst et al and column 2 of Montgomery present numerous

examples of prior art usage of sonic signal transmission of signals over drill strings. These signals are noted to be transmitted either during drilling or during pauses in the drilling operation. Montgomery specifically teaches that the transmission of data by way of vibrations in the drill string was developed to overcome some of the problems with transmission through drilling mud, hardwire, or through the earth.

In Montgomery pressure transducer 707 provides an electrical signal representative of downhole pressure. Transducer 40 then converts the electrical signals to sonic signals generated along the pipe string. The sonic signals then pass uphole past any solid physical obstruction in the well and are converted by uphole transducer 23 to electrical signals. However, no data is stored uphole. It is noted that this reference also discloses the use of microprocessor (704) downhole.

This system of sonic data transmission is noted to be superior to conventional hardwired and electromagnetic transmission, as they require complex hardware (Montgomery at column 1, lines 67-68 and column 2, lines 1-14).

In Bockhorst et al bore hole pressure data is logged and acoustically transmitted uphole along the drill string. See, especially columns 1, 3 and 4.

b). Grossman teaches:

I). Downhole pressure data storage (pages 2 and 3); and

ii) pick-up coupling for data retrieval (overshot device).

Close et al is representative or modern borehole logging of pressure, and downhole data storage. Arriens et al shows recording the data uphole prior art to transmission to the earth's surface.

In addition, applicant has agreed that downhole data logging and storage are known in the prior art as is inductive coupling to a retrieval tool. The problem of shut-in valve blockage is set forth as conventional (amendment, page 4).

Secondly, under Deere, the difference between this prior art and the pending claims lies in the combination of acoustic uphole data transmission over a section of a borehole tube with recording of data at the acoustic receiver prior to pick-up tool transmission.

Third, under Deere, one skilled in this art generally has a graduate degree in geophysics and over seven (7) years of experience. One need only to look at the articles in any issue of Geophysics and Geophysical Prospecting, the leading journals in this field, to realize the technical complexity of this field and the amount of graduate school study and field experience necessary to be considered skilled in this art.

To date no evidence of secondary consideration (objective evidence) has been presented.

Therefore, as the prior art shows the uphole recordation of the received pressure data to be conventional, as is the sonic signal transmission along the pipe, the combination would have been obviousness to one skilled in this art.

4. Applicant's arguments have been considered and are not convincing. First of all, the references must be considered as an ordinary skilled artisan would consider them. See In re

Jacoby, 209 F. 2nd 513, 135 USPQ 317, 319 (CCPA 1962) (obviousness question cannot be approached on basis that skilled artisans would only know what they read in the references; such artisans must be presumed to know something about the art apart from what the references disclose); In re Bozek, 416 F. 2nd 1385, 1390, 163 USPQ 545, 549 (CCPA 1969) (conclusion of obviousness may be made "from common knowledge and common sense of the person of ordinary skill in the art without any specific hint or suggestion on a particular reference").

Applicant's strenuous denial that sonic signal transmission along a pipe is conventional, is noted. However, the prior art of record does not support this denial. As set forth above, column 1 of Bockhorst et al and column 2 of Montgomery present numerous examples of prior art usage of sonic signal transmission of signals over drill strings. These signals are noted to be transmitted either during drilling (when extreme noise conditions exist) or during pauses in the drilling operation. As Applicant has presented mere argument and no evidence to substantiate the assertion, it is found not to be cogent.

It is also noted that Applicant admits that there have been numerous proposals in the prior art for sonic signal transmission along drill strings, but asserts that they have not been successfully implemented in practice and are not widely used. First, there is no evidence of record to support this allegation. Second, the aforesaid prior art teaches that their systems for sonic communication along a drill string were "successful" in operation and an improvement over the prior art.

In addition, the aforesaid prior art discloses operable sonic signal transmission along drill strings when operating when no MWD or LWD operations. Since the signal transmission system operates successfully in such extremely noisy environments, it will clearly operate when no MWD or LWD are taking place.

Furthermore, Applicant's claimed invention operates over a short section of tubing, thus making it much easier to transmit signals with less attenuation and interference than for longer strings as used by the applied references.

In response to Applicant's argument that the Examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPO 209 (CCPA 1971).

NELSON MOSKOWITZ
PRIMARY EXAMINER